

WHAT IS CLAIMED:

1 1. A system comprising:
2 a radio receiver;
3 switched mode circuitry operating at a selected
4 switching frequency; and
5 circuitry for setting said switching frequency of said
6 switched mode circuitry as a function of a frequency of a
7 signal being received by said radio receiver.

1 2. The system of Claim 1 wherein said switched mode
2 circuitry comprises a switching power supply.

1 3. The system of Claim 1 wherein said switched mode
2 circuitry comprises a Class D amplifier.

1 4. The system of Claim 1 wherein said circuitry for
2 setting said switching frequency of said switched mode
3 circuitry comprises:
4 a plurality of crystals of differing resonance
5 frequencies;
6 a crystal oscillator for generating said switching
7 frequency from a selected one of said crystals; and
8 control circuitry for selecting said selected one of
9 said crystals.

1 5. The system of Claim 1 wherein said circuitry for
2 setting said switching frequency of said switched mode
3 circuitry comprises:

4 a signal generator for generating a base frequency;
5 a programmable divider for dividing said base frequency
6 by a selected divisor to generate said switching frequency;
7 control circuitry for selecting said divisor.

5415
A1
1 6. The system of Claim 1 wherein said circuitry for
2 setting said switching frequency includes a microcontroller
3 operable to select said switching frequency in response to
4 selection of a reception frequency band by user input.

1 7. The system of Claim 1 wherein said circuitry for
2 setting said switching frequency detects said frequency of
3 said signal received by said radio receiver by measuring a
4 local oscillator frequency.

1 8. The system of Claim 1 wherein said switching
2 frequency is selected such that at least one harmonic of
3 said switching frequency lies outside a frequency band
4 including said signal being received by said radio receiver.

1 9. An amplifier for use in a system including a radio
2 receiver comprising:
3 an output transistor for driving an output; and
4 pulse width modulation circuitry for generating a pulse
5 width modulated signal in response to an input signal for
6 switching the conduction state of said output transistor, a
7 frequency of said pulse width modulated signal selected as a
8 function of a frequency of a signal received by the radio
9 receiver.

1 10. The amplifier of Claim 9 wherein said pulse width
2 modulation circuitry comprises:
3 a crystal oscillator for generating an oscillator
4 signal of a selected base frequency from a selected one of a
5 plurality of crystals;
6 a microcontroller for selecting said selected one of
7 said crystals as a function of said frequency of said signal
8 received by said radio receiver; and
9 circuitry for converting said oscillator signal into
10 said pulse width modulated signal.

1 11. The amplifier of Claim 10 wherein said circuitry for
2 converting comprises a ramp generator for generating a
3 ramped signal in response to an output of said oscillator
4 and a comparator for comparing the input signal with an
5 output of said ramp generator.

1 12. The amplifier of Claim 9 wherein said pulse width
2 modulation circuitry comprises:

3 a signal generator for generating a base signal of a
4 selected base frequency;

5 a divider for dividing said base frequency by a
6 selected divisor to generate a signal at said frequency of
7 said pulse width modulated signal;

8 a microcontroller for selecting said divisor as a
9 function of said frequency of said signal received by said
10 radio receiver; and

11 circuitry for converting said signal at said frequency
12 of said pulse width modulated signal into said pulse width
13 modulated signal.

1 13. The amplifier of Claim 12 wherein said signal
2 generator comprises a crystal oscillator.

1 14. The amplifier of Claim 9 wherein said output
2 transistor comprises a metal oxide semiconductor field
3 effect transistor.

1 15. The amplifier of Claim 9 wherein said frequency of
2 said pulse width modulated signal is selected such that at
3 least one harmonic of said pulse width modulated signal is
4 outside a selected frequency band including said signal
5 received by said radio receiver.

1 16. A switched mode power supply for use in a system
2 including a radio receiver comprising:
3 a transistor for driving an output; and
4 circuitry for generating a pulse width modulated signal
5 for switching said transistor on and off at a switching
6 frequency selected as a function of a reception frequency of
7 said radio receiver.

1 17. The power supply of Claim 16 wherein said switching
2 frequency is selected such that at least one harmonic of
3 said switching frequency is outside a selected frequency
4 band including said signal received by said radio receiver.

1 18. The power supply of Claim 16 wherein said circuitry for
2 generating comprises:
3 a crystal oscillator for generating said switching
4 frequency using a selected one of a plurality of crystals of
5 differing resonance frequencies; and
6 circuitry for selecting the one of the plurality of
7 crystals for generating said switching frequency as a
8 function of a frequency of said reception frequency.

1 19. The power supply of Claim 18 wherein said circuitry for
2 selecting comprises a microcontroller.

- 1 20. The power supply of Claim 16 wherein said circuitry for
2 generating comprises:
3 a base frequency generator; and
4 a programmable divider for dividing said base frequency
5 by a selected divisor to generate said switching frequency.

1 21. A method of switching a power transistor used in a
2 radio receiver comprising the steps of:

3 determining a frequency of a received signal being
4 received by the radio receiver; and

5 generating a switching signal for switching the power
6 transistor in response to said step of determining, a
7 frequency of the switching signal selected such that at
8 least one harmonic of the switching signal is outside a
9 frequency band including the frequency of the received
10 signal.

1 22. The method of Claim 21 wherein the radio includes a
2 local oscillator and said step of determining comprises the
3 step of counting periods of the local oscillator.

1 23. The method of Claim 21 wherein the radio includes a
2 microcontroller and said step of determining comprises the
3 step of decoding user input selecting the frequency of the
4 received signal.

1 24. The method of Claim 21 wherein said step of generating
2 comprises the substeps of:

3 selecting a crystal from a plurality of crystals of
4 differing resonance frequencies; and

5 generating the frequency of the switching signal from
6 the selected crystal using a crystal oscillator.

